

## CLAIMS:

1. An audio transmission system comprising; a decoder for converting a frame organized input bitstream into an audio output representation; and a bad frame processing means arranged for detecting bad frames in the bitstream; characterized in that the audio transmission system further comprises a pitch period estimator coupled to said audio output for estimating the pitch period of the audio representation; and that the pitch period estimator is further coupled to the bad frame processing means for replacing the audio output during a detected bad frame by a repeat part, which is synchronous to the estimated pitch period.
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2. The audio transmission system according to claim 1, characterized in that the bad frame processing means comprise bitstream buffer means containing a representation of the previous input bitstream.
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3. The audio transmission system according to claim 2, characterized in that the bitstream buffer means comprise indexing means providing a buffer read index, whose value is related to the estimated pitch period for selecting the repeat part from the representation which is stored in the bitstream buffer means.
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4. The audio transmission system according to one of the claims 1-3, characterized in that the decoder is a Pulse Code Modulator, in particular a Differential PCM decoder and/or an Adaptive DPCM decoder.
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5. The audio transmission system according to one of the claims 1-4, characterized in that the bad frame processing means comprises a bad frame detector.
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6. The audio transmission system according to claim 5, characterized in that the bad frame detector is arranged to perform a Cyclic Redundancy Check (CRC).

7. The audio transmission system according to one of the preceding claims embodied as a communication device, such as a telephone device, a speech device, a voice device or the like.
- 5 8. A method for converting a frame organized bitstream into an audio output representation, wherein bad frames are detected in the bitstream, characterized in that a pitch period of the audio output is being measured, and that the pitch period is used as a measure for determining the length of a previous audio output representation, which is at least partly used for replacing said audio output during detection of the bad frame.

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